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American Council for Capital Formation
Center for Policy Research

October 1990

SPECIAL REPORT

Equipment Investment Spurs Economic Growth

A new study by Harvard University professors J. Bradford De Long and Lawrence H. Summers finds a strong link between investment in producers' durable equipment and economic growth.[1] Highlights of their study are presented below. They find that each one percent of gross domestic product (GDP) invested in equipment causes GDP to increase by one-third of a percentage point per year. This is a much stronger association than can be found between growth and any of the other components of investment.

Traditional Economic Growth Theory

Economic historians credit industrialization and mechanization with the boom in European economic growth that began in the 1760s. Modern quantitative studies of economic growth, however, have tended to downplay the role of mechanization, according to De Long and Summers. Economists such as Robert Solow and Edward F. Denison, and others, have typically concluded that capital accumulation accounts for only a relatively small fraction of productivity growth in individual countries, or of differences across countries. Capital accumulation, in the view of Solow and others, can make only a modest contribution to accelerating growth. Even a doubling of the U.S. net private investment rate would, according to standard estimates, raise the growth rate of real income by less than half a percentage point per year.

The De Long and Summers study provides quantitative evidence in support of the older, traditional view that the accumulation of machinery is a prime determinant of economic growth.

Results of the Study

De Long and Summers analyze the effect of electric and non-electric equipment investment on economic growth using data from the United Nations International Comparison Project for a sample of twenty-five high-productivity countries.[2] They reason that the centrality of machinery in historical discussions of growth suggests the importance of disaggregating total investment in considering its relation to economic growth. If machinery and structures contribute differently to growth, then analyses of the relationship between total capital accumulation (equipment plus structures) and growth are likely to be very misleading.

The De Long and Summers study shows that nations that invested heavily in equipment relative to other nations at the same stage of economic development enjoyed rapid growth over the 1960–1985 period (see Figure 1). In evaluating the contribution of equipment investment to growth, the authors hold constant labor force growth rates, the share of GDP devoted to non-equipment investment, and the level of GDP per worker. The results of the regressions underlying Figure 1 imply that an increase of 3 percentage points in the share of GDP devoted to equipment investment leads to an increase in the growth of GDP per worker of 1.02 percent per year, which cumulates to a 29 percent difference over the twenty-five years of the sample. This means, for example, that differences in equipment investment account for essentially all of the extraordinary growth performance of Japan relative to the sample as a whole. Japan achieved a relative GDP per worker growth rate edge of 2.2 percent per year over 1960-1985 relative to the average, and a 5 percent per year edge relative to Argentina. In both cases, more than four-fifths of this difference is accounted for by Japan's high relative quantity of equipment investment.

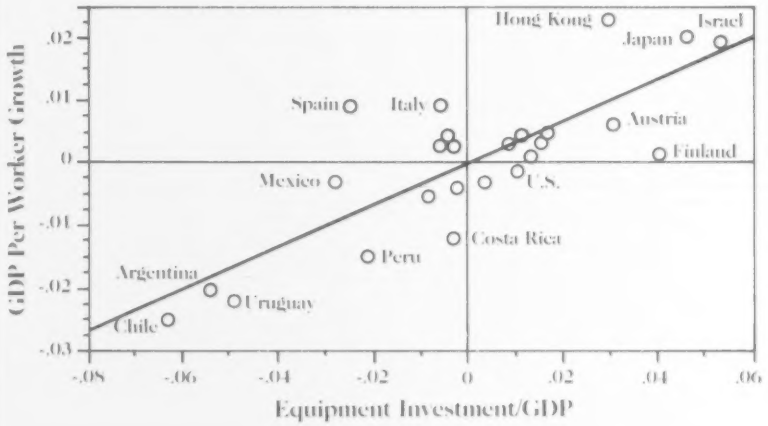
De Long and Summers conclude that one reason to believe that equipment investment causes growth, rather than to believe that growth causes investment, is that if

[1] J. Bradford De Long and Lawrence H. Summers, "Equipment Investment and Economic Growth," mimeographed (Cambridge, Mass.: Harvard University and National Bureau of Economic Research, September 1990).

[2] High-productivity countries are defined as those whose 1960 levels of GDP per worker exceed 25 percent of the U.S. level. Economic growth is defined as the growth rate of GDP per worker, measured in international dollars.

growth caused investment there would be a similar association between structures investment and growth. Rapid economic growth raises the potential profits from investing in equipment and thus induces firms to invest in order to establish and entrench market positions, but it also raises the profits earned by structures. Favorably located land is in fixed supply, and larger structures economize on the use of such land. One might therefore imagine that faster economic growth would tend to shift the use of savings away from producers' equipment and toward structures. Yet it is equipment investment, not structures investment, that is associated with rapid growth in their study.

Figure 1
Economic Growth and Equipment Investment, 1960–1985



Conclusions and Policy Implications

The study makes a persuasive case for a strong association between equipment investment and growth. The relationship between rates of equipment investment and growth accounts for a substantial part of the variation in rates of growth among the countries in their sample. The authors believe that previous studies, which failed to find much correlation between capital accumulation and economic growth, were flawed because they did not disaggregate equipment from structures investment.

The study shows that the benefit to society as a whole—the social return—from equipment investment is at least 30 percent per year. Much of this return accrues to society rather than to private investors. If these results stand up to scrutiny, they have obvious implications. The gains from raising equipment investment through tax or other incentives dwarf the losses that might result from differences in effective tax rates on the various components of investment. A 20-percentage-point-per-year wedge between the social return to equipment and other investment has implications for all policies affecting saving and capital allocation.

De Long and Summers also note that the finding that equipment investment is so important for growth suggests an explanation for the striking differences in economic performance realized by nations with "interventionist" governments that have tried to jump start economic growth. The key difference between countries ruled by "interventionist" governments in South America and East Asia lies in their quantities of equipment investment. Why is it that South America (with the exception of Brazil) and Africa have for the most part had slow economic growth, while East Asian economies with activist governments have done so well? De Long and Summers suggest that the poor performers have confused support for *industrialization* with support for *industrialists*. Policies that try to increase the health of the equipment sector by enriching producing industrialists end up raising prices and reducing quantities and thus are counterproductive—even though existing industrialists are happy with such policies. Government policies that increase the quantity of equipment investment by encouraging purchases appear to have been more successful. The divergence in the relative quantity and price structures for equipment in these countries carries an important insight into what a successful "industrial policy" is and how it should be implemented.

The study suggests that U.S. policymakers would be well advised to consider tax incentives that target investment in equipment because of the positive impact on economic growth.

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American Council for Capital Formation
Center for Policy Research

December 1990

SPECIAL REPORT

The Tax Treatment of Expenditures On Anti-Pollution Equipment by Major U.S. Competitors

To explore the cost of the Clean Air Act Amendments of 1990, the ACCF Center for Policy Research sponsored a symposium on "Environmental Policy and the Cost of Capital" on June 11 and subsequently published a monograph on the symposium proceedings. By publishing this Special Report, *the Center continues to raise the question: How can sound and effective environmental regulation be achieved at the least cost in terms of U.S. economic growth? This* Special Report, *which focuses on how other nations' tax policies encourage the purchase of pollution-control equipment, may be helpful to policymakers as they debate proposals to increase U.S. competitiveness in world markets while achieving environmental goals.*

The benefits to our environment that will be realized as a result of the recent passage of the Clean Air Act Amendments of 1990 will be achieved at considerable costs for both business and consumers. Experts estimate that these costs will add $30 billion (in inflation-adjusted dollars) to the $90 billion that is spent annually to comply with environmental regulations. These additional pollution-control outlays will have a negative impact on the growth of U.S. gross national product and business investment and on the cost of capital, particularly in light of the fact that these outlays must be depreciated at the same rate as other equipment.

According to a recent study by the Law Library of Congress, as pollution has become more and more of a global concern, the number of industrialized countries that require manufacturers to acquire pollution-control devices has grown steadily.[1] To encourage or facilitate compliance with these laws, a number of governments have included incentives in their tax legislation. Accelerated depreciation is the most common type of tax concession that has been granted to certain types of businesses that acquire anti-pollution equipment. Canada, France, Germany, India, Japan, Singapore, and Taiwan all currently have or in the recent past have had special rates for the writing off of equipment and properties purchased for the purpose of preventing pollution or damage to the environment. Eligibility to claim the benefits of these accelerated rates is not dependent on the equipment being specifically mandated but is often contingent on government certification of the particular type of equipment. Because the various countries' special rates established different rules for the amount of depreciation that can be taken in an acquisition year, any country-by-country comparison must be made with considerable caution. Nevertheless, it appears that most of the countries that offer special rates for the depreciation of anti-pollution devices allow at least 80 percent of the acquisition cost to be written off in no more than three years.

U.S. firms, in contrast, must generally recover the cost of pollution-control investments over a significantly longer period. In the United States, pollution-control modifications to plants put in operation after 1975 or pollution-control outlays for a new facility must be depreciated using the applicable schedule for the equipment or structure being modified or constructed. Thus, for example, a U.S. firm recovers only 56.3 percent of its cost after three years under the Modified Accelerated Cost Recovery System (28.2 percent if the firm pays the alternative minimum tax) for pollution-control equipment assigned a seven-year recovery period.

Instead of giving tax concessions to industries, the governments of a number of major industrialized countries award grants to help businesses acquire pollution-control equipment. The United Kingdom is the preeminent example of a nation that prefers to give such a direct type of subsidy.

The table that follows compares the tax treatment of anti-pollution equipment by several of our major industrial competitors.

[1] Stephen F. Clarke, "The Tax Treatment of Expenditures on Anti-Pollution Equipment in Selected Foreign Countries," American-British Law Division, Law Library of Congress, February 1990.

Country	Type of Asset	Tax Treatment
Canada	Equipment used to prevent, reduce, or eliminate air or water pollution.	• Assets acquired to modify equipment or buildings owned or operated prior to 1974 can be depreciated over a 3-year period; 25% can be written off the first year, with the balance written off over the remaining 2 years. • Assets are exempt from Canada's 13.5% federal excise tax (FET); they will, however, apparently be subject to the 7% VAT that is expected to replace the FET in 1991.
Japan	Equipment used to prevent, reduce, or eliminate air, water, or noise pollution.	• Equipment used for pollution control is depreciated over a 7-year period using the straight-line method with an additional first-year write-off of 21% . Thus equipment with a 7-year life receives a depreciation allowance of approximately 35% in the first year. • Structures used in pollution control (e.g., chimneys, towers, etc.) are depreciated over a period of 10 to 30 years; they also receive an additional first-year write-off of 21% . • Eighty percent of capital gains on sales of property in pollution-control areas can be deferred if proceeds are reinvested in non-controlled areas. • Purchases of pollution-control equipment not manufactured in Japan are exempt from certain duties.
West Germany	Equipment that serves more than 70% for the purpose of reducing air, water, or noise pollution.	• Assets acquired between 1975 and 1990 receive a 60% deduction in the first year, with the balance written off at 10% per year; assets acquired prior to 1975 receive accelerated depreciation.
Singapore	Equipment used to prevent, control, or reduce air or water pollution.	• Assets acquired between 1975 and 1987 can be depreciated over 3 years at a rate of 33.3% per year.
Mexico	Equipment used to control air, water, or noise pollution.	• Assets of Mexican-owned corporations receive a tax credit equal to 24% of the cost of the asset. • Mexican-based firms that manufacture pollution-control equipment receive a tax credit for the wages of new employees for the first 2 years of their employment. The credit is 20% of the prevailing minimum wage for each full-time employee.
France	1. Equipment used to purify industrial water or air or to remove odors. 2. Equipment used in collecting and processing waste that saves energy and raw materials and indirectly helps pollution efforts.	1. Assets receive a 50% deduction in the first year. 2. Assets receive accelerated declining balance depreciation.
Taiwan	Equipment used to prevent air or water pollution.	• Assets can be depreciated over two years.
India	Equipment used to reduce air or water pollution.	• Assets receive a 30% deduction in the first year and can be fully depreciated over the subsequent 3- to 4-year period.

Source: Stephen F. Clarke, "The Tax Treatment of Expenditures on Anti-Pollution Equipment in Selected Foreign Countries," American-British Law Division, Law Library of Congress, February 1990, LL 90-10. Table prepared by the American Council for Capital Formation Center for Policy Research, December 1990.

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American Council for Capital Formation
Center for Policy Research

February 1991

SPECIAL REPORT

Tax Expenditures: A Critical Appraisal

by Dr. Norman B. Ture

This Special Report *contains excerpts from a recent study of tax expenditures that was published by the Savers & Investors Foundation.[1] The study's author, Dr. Norman B. Ture, clearly makes the point that U.S. budget policy is troubled enough in this time of persistent deficits without the use of misstated and mismeasured tax expenditures. We present this* Special Report *to our readers because it offers a thoughtful, critical analysis of an issue that affects U.S. tax and budget policy.*

Identifying the nature and magnitude of the influences that government activities and policies exert on economic activity is essential for good budget and tax policy. Although identifying and measuring "tax expenditures," as tax provisions that are believed to have the same effects as government outlays, is appealing in the abstract, in practice the identification and measurement of tax expenditures are seriously flawed. These limitations are so severe that the desirability of continued listing of tax expenditures in the federal budget should be subjected to the closest scrutiny.

CONCEPTUAL DEFICIENCIES OF TAX EXPENDITURES

The Congressional Budget Act of 1974, which mandates their inclusion in the federal budget, defines tax expenditures as "... revenue losses attributable to provisions of the Federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability." The current budget treats tax expenditures as essentially the same as "tax subsidies."

A meaningful and operational concept of tax expenditures requires:

- a clearly and completely specified set of tax laws that delineate a "correct" tax system, in order to determine whether any provisions of the actual law afford special exclusions, exemptions, etc., resulting in revenue losses;
- feasible techniques for correctly measuring the revenue losses resulting from tax expenditures; and
- conceptually acceptable means for identifying and measuring government outlays to which the tax expenditures are equivalent.

Problems in Defining the "Correct" Income Tax

The Budget Act of 1974 does not specify the tax laws that provide the standard against which any provision of the actual tax law should be judged to determine whether it should be identified as a tax expenditure. Since 1982, the budget document has identified tax expenditures as "... deviations from general rules that could be compared to the subsidy and transfer programs on the outlay side of the budget...." The "general rules" are those of a so-called "reference tax law," itself often ambiguous, arbitrary, and judgmental. The "reference tax" standard does not afford a rigorous definition of taxable income that is needed to identify tax provisions that may be characterized as special or as tax expenditures because they do not conform with this definition.

The Neutrality Criterion

The definition of taxable income that is needed to identify tax expenditures must be derived from the application of the tax neutrality criterion. Neutrality would provide a straightforward, conceptually consistent delineation of the required features of the "correct" income tax to be used in identifying provisions of the actual tax law that do not conform, hence may be identified as tax expenditures.

A neutral tax system is one that would not alter the relative prices and costs of goods, services, and activities that would prevail in an efficiently functioning private market, i.e., a market the results of which are not influenced by government actions or policies. The neutrality criterion calls for a tax that changes in the same proportion the costs and prices of all alternatives confronting taxpayers.

The neutrality criterion is essential if tax expenditures are to be identified as tax subsidies. A subsidy reduces the cost

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[1]Norman B. Ture, *Tax Expenditures: A Critical Appraisal* (Centreville, Virginia: Savers & Investors Foundation, 1990). For copies of the complete report, contact Suzanne K. Moreland, vice president, Savers & Investors League, 14200 F Centreville Square, Suite 175, Centreville, Virginia 22020; phone: (703) 815-3959, fax: (703) 815-3960.

or the price of the subsidized product, service, or activity below the level that would prevail in a market unaffected by government policies or activities. A neutral tax system would include no provisions that provide subsidies nor would it contain any provisions that differentially raise the price or cost of any product, service, or activity.

Tax Expenditures at Odds with Neutrality

Tax neutrality considerations would dictate a list of tax expenditures quite different from that presented in the federal budget. Many of the principal tax expenditures on the budget list are provisions that moderate the tax bias against saving and in favor of current consumption uses of current income. A tax expenditure list based on neutrality considerations would not show those provisions as tax subsidies. On the contrary, such a list would show the provisions of the tax law that exert an anti-saving bias as *negative* tax subsidies, i.e., as special tax penalties.

It is widely recognized that the income tax is inherently biased against saving and in favor of current consumption. While both consumption and saving come from after-tax income, disposable income that is used for current consumption is not again subject to the income tax, but income that is earned by current saving *is*. Taxing both saving and its returns raises the cost of saving compared with the cost of current consumption.

If the income tax is to be neutral in regard to saving vs. consumption uses of income, it must either allow the deduction of current saving while taxing all the returns on that saving, or it must tax all current income, including that which is saved, but exclude from tax all of the returns on the saving. The present income tax affords neither sort of treatment as a general rule; it does, however, provide some limited exclusions of income that is saved under retirement saving plans and does exempt from tax the interest earned on certain state and local government indebtedness. Provisions that embody either approach should be identified as moves *toward*, not away from, tax neutrality.

The budget listing of tax expenditures disregards the neutrality criterion. Among the largest tax expenditures in that list are provisions that moderate the anti-saving income tax bias, including the exclusion of employer contributions to pension plans and the earnings of such plans, the exclusion of interest on life insurance saving, and the exclusion of contributions to IRA plans and the earnings of these plans.

Also included are corporate income tax rates less than the 34 percent rate that applies to all of the income of a corporation if the corporation's income exceeds $335,000. It is difficult to perceive any justification for identifying these graduated rates as a tax expenditure. The corporate income tax itself is an extra layer of tax on the saving committed by individuals to ownership of equity interests in corporations. No provision that eases this extra tax burden should be treated as a tax expenditure.

PROBLEMS IN MEASURING TAX EXPENDITURES

Both technical and conceptual problems beset the measurement of tax expenditures. As indicated in the budget, the measurement of tax expenditures involves two steps. The first step is to measure the revenue loss of the tax provision identified as a tax expenditure. The revenue loss is then adjusted to an outlay equivalent.

Both measurements are conceptually fragile and grossly misleading. The revenue estimates themselves suffer from severe conceptual limitations, and the translation of these revenue losses into outlay equivalents also confronts formidable conceptual obstacles. . . .

CONCLUSIONS

The evaluation of the budget presentation of tax expenditures must rest on whether the listing serves a useful purpose of budget policy.

The appropriate purpose for listing tax expenditures, *assuming they were properly identified and measured*, would be to provide a fuller and more accurate delineation of the impact of government activities in claiming production resources, in directing their use, or in allocating the income claims generated by their use. For this purpose, however, the listing that is required would show not only those tax provisions that afford subsidies but those that differentially penalize affected activities, as well.

To serve this purpose, both the present basis for identifying "special" tax provisions and the methods for estimating their revenue effects would have to be drastically revised. The appropriate baseline tax would have to be spelled out in conformity with the dictates of tax neutrality, and the estimate of the revenue effects would have to be derived by taking as full account as possible of the dynamic responses throughout the economy to the provisions that are determined to be special. Some means would have to be found to identify the subsidy or differential penalty effect on costs and prices and to translate them into revenue effects and outlay equivalents.

Each of these requirements would confront formidable difficulties. If these requirements are not met, however, serious consideration should be given to repeal of the statutory provision requiring the inclusion of the tax expenditure listing in the budget.

The present tax expenditure listing misinforms those who inspect it, both in the identification of provisions deemed to be tax expenditures and in the magnitude of the revenue losses and outlay equivalents they entail. It should have no place, therefore, in the formulation of budget or tax policy.

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American Council for Capital Formation
Center for Policy Research

March 1991

SPECIAL REPORT

Cost of Capital: Reflections of a CEO

George N. Hatsopoulos

The Cost of Capital

A corporation's cost of equity is the rate of return stockholders demand. The pre-tax cost of debt is the interest rate, i.e., the rate of return that lenders demand. Whereas the after-tax cost of debt to a corporation is less than the interest rate, the cost of equity in America is the same as the return demanded by stockholders because no corporate tax deduction is provided for the payments to corporations' stockholders.

There are two kinds of corporate investments: investments in hard assets, such as plant and equipment; and soft investments, such as research and product development, the development of new markets, and the training of employees. Different kinds of investments may have different costs of capital.

One difference in the cost of capital among investments comes from differences in taxation. For example, the depreciation rate allowed by the tax code is different for structures and for equipment. However, the principal difference in the cost of capital among the assets of the same corporation comes about because of differing sources of funds applicable to various assets. In one extreme, general purpose real estate can be financed mostly by low-cost debt whereas, in the other extreme, soft investments can only be financed through equity.

Different kinds of investments may have different costs of capital.

The cost of capital for soft investments is identical to the cost of equity for two reasons. The first is that it is nearly impossible for lenders to assess the value of soft assets with any degree of certainty. Consequently, such assets do not provide suitable collateral for debt financing. The second reason is that accounting rules in all countries require that most soft investments be charged against current income. A reduction of current income can only be justified to stockholders if they perceive that it is likely to produce future income that exceeds, in discounted present value, the cost of the investment. The applicable rate for such a discounting exercise is the cost of equity. The after-tax cost of equity not only controls the amount of the soft investments that a corporation makes, but also the time horizons of such investments.

Industrial Competitiveness and the Cost of Capital

Historically, the rate of fixed capital formation was an important determinant of the industrial competitiveness of a country. In recent years, however, investments in soft assets have become increasingly more important. In fact, they may well be the most important type of capital for the industrial competitiveness of high-wage countries such as the United States, Germany, and Japan.

The reason for this shift is that several countries have reached a stage of technological development sufficient to compete with the United States in technology-intensive industries. These industries command a higher price per unit of labor than do commodity-oriented industries, because fewer countries can enter the market. In addition, there are markets such as consumer electronics in which market dominance and product quality can provide a competitive edge sufficient to allow the leading companies to command higher prices. Achievement of

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such dominance combined with a reputation for quality requires heavy long-term intangible investments not only in product development but also in marketing and service. *Thus, for a high-wage country to be competitive, a low cost of capital for soft or intangible investments is essential.*

For a high-wage country to be competitive, a low cost of capital for soft or intangible investments is essential.

America's competitiveness problem in technology-based industries is due neither to the lack of basic research nor to a lack of innovations. In fact, our failure stems from the inadequate rate at which U.S. firms bring new products to market. There are numerous examples, ranging from robots to flat-screen displays, of American inventions that were first exploited commercially by foreign corporations. America's extraordinary ability to create new technologies derives both from the high value American society places on individualism and entrepreneurship, and from the support the U.S. government provides for research. On this latter point, it should be noted that, although Japan spends a greater share of its gross national product in non-defense

American industry misses many opportunities to utilize domestically created technology by showing reluctance to make the necessary long-term investments in product development and marketing.

research and development than does the United States, it spends a trivial amount for basic research. Nevertheless, American industry misses many opportunities to utilize domestically created technology by showing reluctance to make the necessary long-term investments in product development and marketing.

What Affects Corporate Time Horizons

A nation's cost of equity has a significant effect on the time horizons of native companies. Such a relationship will be obvious to anyone who has dealt with corporate finance. What is less obvious is the possibility that time horizons of U.S. corporations have been adversely influenced by the entry into our domestic markets of foreign corporations that have low equity cost.

Long-term technological advancements, such as the development of integrated circuits, can offer tremendous benefits to end users. In such cases, a high cost of equity applicable to all corporations need not deter any one corporation from undertaking such a project, because it would eventually be in a position to recover its costs. Prior to the 1970s, U.S. technology-based corporations had few foreign competitors and, therefore, could maintain long time horizons in spite of high equity costs. More recently, however, the emergence of firms from Japan and Germany with strong technologies and lower equity costs has significantly limited the range of long-term projects that U.S. corporations can pursue profitably.

Another issue relating to time horizons is often misunderstood. Two companies with differing price-to-earnings ratios can have the same cost of equity, provided the company with the higher price-to-earnings ratio has an appropriately higher expected growth rate. Two such companies, however, would tend to have a different propensity for long-term investments, because the signals from the equity markets are different. What stockholders are telling the company with the high price-to-earnings ratio is that they are more interested in its future growth rather than its current earnings. The message to the other company is the opposite: future growth is not expected; current earnings are more important.

Managing the Cost of Capital: What Managers Can Do

The cost of capital varies more from company to company in any one country than it does on average from country to country. Much of the variation is due to factors that are beyond the control of corporate executives. Such factors include public policy and the stage of the corporation's development. Nevertheless, there are many things corporate managers can do to affect their firms' cost of capital significantly.

The most obvious and broadly recognized tool is management of the company's financial leverage. It is well known that for any firm there is an

There are many things corporate managers can do to affect their firms' cost of capital significantly.

optimum leverage that minimizes its cost of capital. Such an optimum depends on many factors, such as the firm's line of business. It is also well known that the corporation's relationships with its creditors and its stockholders are most important. Yet the managers of most U.S. corporations do not appear to understand the extent to which they can influence not only the perceptions their stockholders have about their companies, but also the composition of the stockholders.

The top management of my company, Thermo Electron Corporation, decided twenty years ago to drive the ownership of our stock into the hands of individuals and institutions that are both interested in understanding our businesses and intent on investing for the long term. We believe we have accomplished our objective, as witnessed by the fact that over the past fifteen years the price of our stock has averaged 20 times earnings. We have

never paid a dividend, and our declared policy is not to pay dividends in the foreseeable future.

We accomplished our objective by keeping in almost daily contact with many of our stockholders to inform them of not only favorable but also unfavorable developments and to clearly articulate our strategy. Such a sustained effort causes a shift of stock

We accomplished our objective by keeping in almost daily contact with many of our stockholders to inform them of not only favorable but also unfavorable developments and to clearly articulate our strategy.

ownership from short-term to long-term investors. This can have an important effect on a company's time horizon. Even when all investors require identical returns on equity, they may differ in the degree of credibility they assign to a company's prediction of high future returns from a given investment. Attracting investors who view such forecasts as credible will enable the firm to undertake longer-horizon projects.

One class of investors we pursued was Europeans, who are typically more long-term oriented than Americans. Moreover, most Europeans pay no capital gains tax on the appreciation of equities, thus making our shares of particular interest. Many American companies raise equity and convertible debt in Europe, but few follow up by keeping in near constant contact with their international investors, especially in bad times. The contrast we provided to European investors by our frequent visits has been particularly effective. The result of our twenty-year campaign has been to increase the ownership of our shares in Europe from less than 10 percent in 1970 to more than 30 percent in 1990.

Managing the Cost of Capital—What Can Government Do Now

The price of capital, like that of any other commodity in the marketplace, balances demand with supply. The elimination of barriers to capital flows has created a common source of funds for debt financing available to all countries. As a result, interest rates in various industrialized nations have converged. Equity financing in each country, however, is provided mainly by each nation's pool of savings. For that reason, the low saving rate in the United States is a principal cause of its high equity costs. The net U.S. saving rate in the 1980s was 4 percent of national income—a sharp contrast to 12 percent in Germany and 20 percent in Japan.

The low saving rate in America, however, is not the only cause for high

The low saving rate in the United States is a principal cause of its high equity costs. The net U.S. saving rate in the 1980s was 4 percent of national income—a sharp contrast to 12 percent in Germany and 20 percent in Japan.

equity costs. National saving provides funds to both equity-financed and debt-financed investments. In the United States, the returns from debt-financed projects are taxed less than those from equity-financed projects. The opposite is true in Germany and Japan.

The high taxation of corporate equity investments in the United States derives from the double taxation of dividends and from the double taxation of retained earnings. Double taxation of dividends is readily apparent: Earnings are taxed at the corporate level and then again at the investor level when paid as dividends. Double taxation of retained earnings, however, is a more abstract concept. It comes

The high taxation of corporate equity investments in the United States derives from the double taxation of dividends and from the double taxation of retained earnings.

about because, on average, corporate shares appreciate directly in proportion to after-tax retained earnings. When an investor buys a corporate share and then sells it later at a higher price, the tax is levied at the capital gains rate—even though the appreciation may be the sole result of the accumulation of after-tax profits.

In Germany, capital gains from equity investments are excluded from taxation at the investor level. The same was true in Japan prior to 1989; since 1989, capital gains from equity investments have been taxed at a small rate that decreases for longer-term investments. In both of these countries, the double taxation of retained earnings is virtually eliminated. Dividends, on the other hand, are given only minor relief from double taxation. That has led corporations in Germany and, in particular, Japan to retain most of their earnings, and to pay only small dividends. These policies cause national saving in our two major competitors to be funneled mostly into corporate equities.

In order to reduce the high cost of equity that is crippling U.S. industry, and to bring it more in line with that of

In order to reduce the high cost of equity that is crippling U.S. industry, and to bring it more in line with that of our principal competitors, our government must do two things: increase national saving and reduce the double taxation of retained earnings.

our principal competitors, our government must do two things: increase national saving and reduce the double taxation of retained earnings.

Conclusion

The American public has a major role to play in reducing our cost of capital because in our political system the public has a major influence on what the government does.

Over the first 200 years of its existence, America created the most prosperous society in the world. It started out as a minor player, compared to the European economic giants of the nineteenth century, but ultimately the U.S. overtook all of them by a wide margin. It did so by saving a larger share of its national income than did any other country.

The Great Depression brought the realization that America may have gone too far in accumulating savings and curtailing consumption. Aided by World War II, our society started to consume more and save less. This shift had dramatic beneficial effects that peaked during the 1960s. Feeling omnipotent at that time, we continued to spend more and save less. Today, most of the American public believes that saving is bad, consumption is good, and that the federal deficit does not have much effect on their own well-being. Surveys of the past few years confirm such public attitudes. Americans have seen their wages stagnate over the past dozen years but attribute the problem to everyone but themselves.

It is time for the public to understand that the economic problems we face are of our own making, and they are not caused by foreigners.

It is time for the public to understand that the economic problems we face are of our own making, and they are not caused by foreigners. If we continue to consume 96 percent of our national income and save only 4 percent, if we continue to depend on foreign lenders to finance our budget deficit, and if we continue to demand more government spending without increasing taxes, our future is bleak. But, if we restore our faith in investing for the future—which served this country so well in the past—our society's advantages in natural and human resources will enable America to grow and remain the most prosperous society in the world. Government and business will do their share only when the public understands the root causes of our difficulties. ■

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SPECIAL REPORT

The Economic Impact of the Corporate Alternative Minimum Tax: Questions and Answers

by Margo Thorning

Research presented at a May 14 symposium on the corporate alternative minimum tax (AMT) organized by the ACCF Center for Policy Research provides strong evidence that the AMT is handicapping U.S. business by increasing capital costs and thus provides an edge to our foreign competitors. Further research suggests that the corporate AMT penalizes the modernization of American industry as well as investments in pollution-control equipment needed to meet environmental goals. The ACCF Center for Policy Research offers this Special Report *to further a constructive debate on the corporate AMT.*

Q. What is the corporate alternative minimum tax?

A. The Tax Reform Act of 1986 created a comprehensive alternative minimum tax (AMT) system that exists separate from, but parallel to, the regular tax system. Under the AMT scheme, taxable income is modified by an intricate series of "adjustments" and by "preference items" to arrive at alternative minimum taxable income (AMTI). Depreciation allowances for firms paying the alternative minimum tax are generally much less favorable than those for firms paying the regular corporate income tax. The corporate minimum tax rate is 20 percent, while the minimum tax rate for individuals is 24 percent.

There are two main reasons why corporations become AMT payers: (1) a high level of investment in assets such as equipment and structures, and/or (2) low taxable income due to cyclical downturns, strong international competition, or other factors.

Q. Who pays the AMT?

A. It is commonly believed that the AMT extracts only *token amounts* of income tax from "rogue" companies that otherwise would be able to avoid paying their "fair share" of taxes. Actually, more than 60 percent of the $3.4 billion the Internal Revenue Service collected in AMT taxes in 1988 was paid by the capital-intensive manufacturing, mining, construction, transportation, and utility sectors. *Depreciation for capital equipment is by far the major reason that corporations become AMT payers.* In 1988, according to IRS data, more than 80 percent of the AMT "adjustments" and "preferences" category was depreciation charges on equipment and structures, which are vitally needed to increase U.S. competitiveness. An estimated 40 percent of large U.S. corporations may pay the AMT rather than the regular income tax for tax years 1990 and 1991.

Q. How does the AMT affect tax liability?

A. Another common misconception is that AMT status *reduces* a firm's tax liability. Quite the opposite is true. Firms paying the AMT *always* pay more than they would pay if they were regular tax payers because the law requires them to compute their taxes under both the regular tax and the AMT and to pay the *larger* amount of taxes.

Q. How does the AMT affect taxes for firms that purchase pollution-control equipment?

A. As shown in the example in Table 1, in the absence of new capital expenditures, both the regular income tax and the AMT for a typical manufacturing firm may equal $170 million over a five-year period (see columns 1 and 2). The AMT firm (column 2) became an AMT payer by making plant and equipment outlays in previous years that result in $350 million in depreciation charges over the five-year period covered in Table 1.

If a firm makes a new capital expenditure for pollution-control equipment, for example, and is a regular tax payer, its tax liability will be sharply reduced. Compare, for example, the $91 million in regular taxes paid by a paper firm (column 3) to the $170 million in regular taxes it would have paid had it not made the new $300 million investment (column 1)—a reduction in tax liability of *$79 million*. However, if the firm is an AMT payer, its tax burden will be reduced only *slightly*. Compared to a similar firm that makes no outlays for new equipment, an AMT paper products firm that spends $300 million to comply with environmental regulations would find its taxes reduced by only *$22 million* ($170-$148=$22). The AMT paper firm making the new investment

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Table 1: The Burden of the Corporate AMT on Investment in Capital Equipment ($ millions)

	Tax Liability[1] With No New Capital Equipment		Tax Liability[1] With New Outlay of $300 Million for Pollution-Control Equipment[2]							
			Paper and Allied Products Firm		Utility Firm		Steel Firm		Chemicals and Allied Products Firm	
	Regular Income Tax (1)	AMT (2)	Regular Income Tax (3)	AMT (4)	Regular Income Tax (5)	AMT (6)	Regular Income Tax (7)	AMT (8)	Regular Income Tax (9)	AMT (10)
Regular Taxable Income	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Less: Tax Depreciation			232	232	197	197	232	232	300	300
Add: Adjustments & Preferences										
Depreciation: Old Equipment		350		350		350		350		350
Depreciation: New Equipment				104		149		113		137
Alternative Minimum Taxable Income (AMTI)		850		722		802		731		687
ACE Adjustment[3]				19		0		17		14
Taxable Income or AMTI	500	850	268	741	303	802	268	748	200	701
Tax Rate	34%	20%	34%	20%	34%	20%	34%	20%	34%	20%
Regular Tax or AMT Paid	$170	$170	$ 91	$148	$103	$160	$ 91	$149	$ 68	$140
Additional Tax Paid by AMT Firm		0		$ 57		$ 57		$ 58		$ 72

Note: This example assumes that AMT companies are on the AMT for the five-year period covered by the example and that they have made prior-year capital expenditures that result in $350 million in depreciation adjustments.

[1]Tax liability is for a five-year period.

[2]An investment of $300 million in pollution-control equipment would enable firms in the chemical, paper, and steel industries to bring multiple mills into compliance with environmental regulations. A utility might invest $300 million to bring a single plant into compliance.

[3]The adjusted current earnings (ACE) calculation is part of the calculation used to determine allowable depreciation under the AMT.

pays more than 60 percent more in taxes than does the firm paying the regular tax. The AMT firm's cash flow is adversely affected, and its ability to invest is further hampered.

AMT firms typically pay significantly more in taxes (as much as 105 percent more in the chemical industry) than do their regular tax counterparts when they buy new equipment or structures to modernize and to comply with environmental regulations, to expand capacity, or to meet the challenge of international competition. As can be seen in Table 1, a utility firm on the AMT that makes a $300 million investment in pollution-control equipment pays $57 million more in taxes over the five-year period than a regular tax payer (column 6), an AMT steel firm pays $58 million more (column 8), and an AMT chemical firm pays $72 million more (column 10).

Q. How does the AMT affect U.S. cost recovery compared to our competitors?

A. Recent research by Arthur Andersen and Co. shows that U.S. firms paying the AMT recover their investment costs for new equipment much more slowly than do companies in major competitor nations.[1] For example, U.S. firms manufacturing engine blocks recover only 34 percent of their capital expenditures after five years if they are AMT payers, compared to 94 percent in Korea, 87 percent in Germany, 72 percent in Canada, and 64 percent in Japan. U.S. producers of robots used in manufacturing and steel producers are similarly disadvantaged.

U.S. depreciation allowances for pollution-control equipment such as wastewater treatment facilities and scrubbers used in electricity generation are far worse than those provided by other countries. A typical case is wastewater treatment equipment used in manufacturing pulp and paper; nominal recovery after five years for U.S. firms paying the AMT is 36 percent compared to 100 percent in Canada, 97 percent in Korea, and 68 percent in Brazil (see Figure 1).

Q. How does the AMT affect capital costs for investment in equipment?

A. A new study by University of Maryland economics professor Andrew Lyon reveals that the AMT raises the cost of

[1]Stephen R. Corrick and Gerald M. Godshaw, "AMT Depreciation: How Bad Is Bad?" in *Economic Effects of the Corporate Alternative Minimum Tax* (Washington, D.C.: ACCF Center for Policy Research, forthcoming), pp. 1–31.

capital and thereby discourages investment.[2] An AMT firm investing in equipment to make factory robots, for example, encounters capital costs that are 17 percent higher than those faced by a firm paying the regular income tax. Investment in pollution-control facilities fares even worse; capital costs for AMT firms are 22 percent higher than for firms subject to the regular income tax. (See Figure 2.)

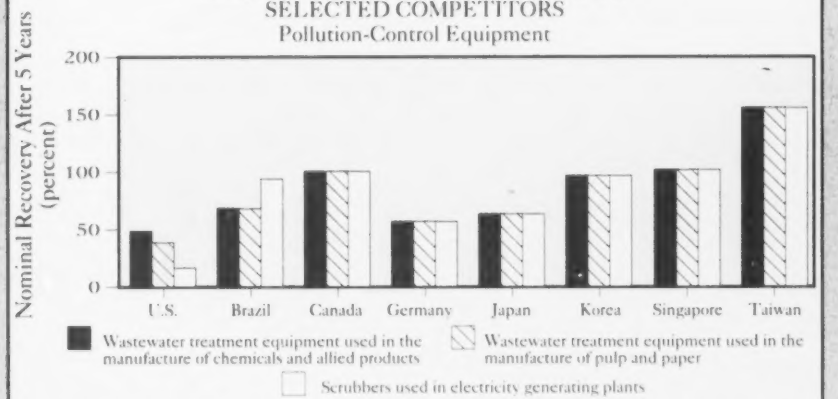
Q. How does the AMT affect capital investment decisions?

A. AMT status tends to discourage capital-intensive firms from making capital expenditures for several reasons:

- Companies are less likely to undertake investments that are marginally profitable or investments to meet environmental regulations because of the AMT. Some companies may be forced to shut down U.S. plants because of the AMT's negative effect on the profitability of investments in plant and equipment.
- If a capital-intensive firm refrains from making capital outlays, including those for pollution-control equipment, it will eventually work its way out of the AMT because its depreciation "preferences" will disappear.
- Small start-up firms in particular are likely to be AMT payers and, unable to use the more generous depreciation allowances under the regular income tax, to find it harder to compete with established firms.
- The tax liabilities of AMT firms are reduced less when they make capital expenditures than are those of firms paying the regular tax. Thus, AMT firms are at a competitive disadvantage.

[2]Andrew B. Lyon, "The Alternative Minimum Tax: Equity, Efficiency, and Incentive Effects," in *Economic Effects of the Corporate Alternative Minimum Tax* (Washington, D.C.: ACCF Center for Policy Research, forthcoming), pp. 51–82.

FIGURE 1
NOMINAL CAPITAL COST RECOVERY: U.S. FIRMS SUBJECT TO THE AMT COMPARED TO SELECTED COMPETITORS
Pollution-Control Equipment



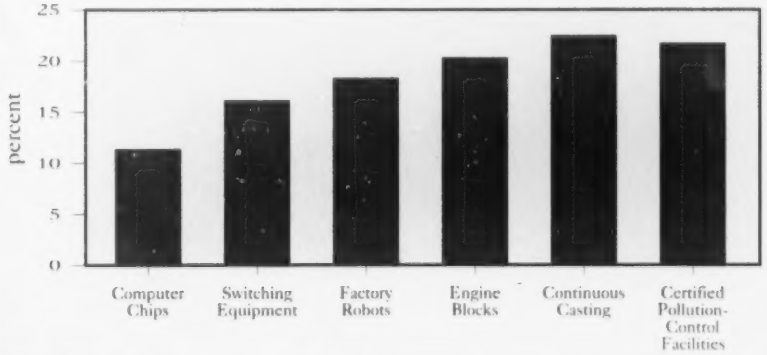
Source: Stephen R. Corrick and Gerald M. Godshaw, "AMT Depreciation: How Bad Is Bad?" in *Economic Effects of the Corporate Alternative Minimum Tax* (Washington, D.C.: ACCF Center for Policy Research, forthcoming), pp. 1–31.

Notes: Nominal capital costs recovered after five years measure the speed at which a firm is able to recover its capital expenditures. U.S. firms are assumed to pay the alternative minimum tax (AMT) throughout the class life of the asset.

The alternative minimum tax refers to the capital cost recovery provisions of the Tax Reform Act of 1986 for firms incurring the alternative minimum tax adjusted current earnings rule. The calculations assume the firm stays on the AMT.

None of the competitor countries has an AMT similar to that of the U.S.

FIGURE 2
INCREASED COST OF CAPITAL INCURRED BY AMT FIRMS COMPARED TO FIRMS PAYING THE REGULAR INCOME TAX
Equipment Used to Make Selected Manufactured Products and Pollution-Control Equipment



Source: Andrew B. Lyon, "An Analysis of the Alternative Minimum Tax: Equity, Efficiency, and Incentive Effects," in *Economic Effects of the Corporate Alternative Minimum Tax* (Washington, D.C.: ACCF Center for Policy Research, forthcoming), pp. 51–82.

Notes: The analysis assumes that firms are alternative minimum tax (AMT) payers for ten years. The cost of capital calculations are net of economic depreciation.

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